

I claim:

1. An electrical power system within the hull of a small watercraft comprising:

a PEMFC;

a hydrogen supply system to supply hydrogen to the PEMFC;

an oxygen supply system to supply oxygen to the PEMFC; and,

a rechargeable battery to be recharged from at least a portion of the output of the PEMFC.

2. The electrical power system of claim 1 further comprising a propulsion module to receive electrical power provided by at least one of the PEMFC and the rechargeable battery.

3. The electrical power system of claim 1 wherein the hydrogen supply system further comprises at least one pressurized hydrogen storage tank.

4. The electrical power system of claim 1 wherein the hydrogen supply system further comprises a reformation means, whereby hydrogen is generated through the reformation of hydrogen rich fuels.

5. The electrical power system of claim 1 further comprising a DC/DC converter through which electrical power from the PEMFC is converted to a selected DC.

6. The electrical power system of claim 1 further comprising an inverter through which electrical power from the PEMFC is converted to a selected AC.

7. The electrical power system of claim 1 further comprising;

an inverter through which electrical power from the PEMFC is converted to a selected AC; and,

a DC/DC converter through which electrical power from the PEMFC is converted to a selected DC.

8. The electrical power system of claim 1 further comprising a controller whereby the recharging of the battery from the electricity produced by the PEMFC is controlled.

9. The electrical power system of claim 8 further comprising a sensor which provides information to the controller about the charge of the battery.

10. The electrical power system of claim 1 further comprising a through the hull heat exchange means.

11. The electrical power system of claim 10 wherein the through the hull heat exchange means is a fuel cell heat exchanger thermally connected to a heat exchange region.

12. The electrical power system of claim 2 further comprising at least one controller whereby the flow of electricity to the propulsion module can be varied.

13. The electrical power system of claim 1 further comprising a DC/DC converter through which electrical power from at least one of the rechargeable battery and the PEMFC is converted to a selected DC.

14. The electrical power system of claim 1 further comprising an inverter through which electrical power from at least one of the rechargeable battery and the PEMFC is converted to a selected AC.

15. An electrical propulsion system within the hull of a small watercraft comprising:

a PEMFC;

a hydrogen supply system;

an oxygen supply system;

a rechargeable battery to be recharged from the output of the PEMFC; and,

a propulsion module to receive electrical power provided by the rechargeable battery.

16. The electrical power system of claim 15 wherein the hydrogen supply system further comprises at least one pressurized hydrogen storage tank.

17. The electrical power system of claim 15 wherein the hydrogen supply system further comprises a reformation means , whereby hydrogen is generated through the reformation of hydrogen rich fuels.

18. The electrical power system of claim 15 further comprising a DC/DC converter through which electrical power from the PEMFC is converted to a selected DC.

19. The electrical power system of claim 15 further comprising an inverter through which electrical power from the rechargeable battery is converted to a selected AC.

20. The electrical power system of claim 15 further comprising a controller whereby the recharging of the battery from the electricity produced by the PEMFC is controlled.

21. The electrical power system of claim 20 further comprising a sensor which provides information to the controller about the charge of the battery.

22. The electrical power system of claim 15 further comprising a through the hull heat exchange means.

23. The electrical power system of claim 22 wherein the through the hull heat exchange means is a fuel cell heat exchanger thermally connected to a heat exchange region.

24. The electrical power system of claim 15 further comprising at least one controller whereby the flow of electricity to the propulsion module can be varied.